listens attentively. If the cause of alarm is repeated, the whole group at once start off, and very speedily disappear in the depths of the forest. Sometimes, however, a few, not heeding the warning, remain on the ground, and so fall victims to the steady aim of the practised bushman. In this way a "mob" of kangaroos is often broken up and dispersed into smaller ones, which rejoin when the danger is past.

The young ones after the warning is given by the older ones, are the first to retreat: those, however, that are dependant on their parents, are received into the pouch of the mother.

I obtained towards the middle of December a fœtus of the kangaroo, still contained in the womb, and suspended to the teat.

The absence of the kangaroo rat (44, *Bettongia jerboa*) and bandicoot (73, *Perameles fasciata*) in these districts, is rather remarkable; but it is counterbalanced by swarms of bush rats. These animals burrow in great numbers close together, and patches of ground completely honey-combed by them are everywhere observable. Such spots are, on account of the size and depth of these holes, dangerous to pass over with a horse.

The porcupine (21, *Echidna hystrix*) generally makes its appearance from its hole about sunset. It is plentiful along the sand hummocks along the southern coast.

VI. Aborigines.—Of the aborigines of these parts, I am unable to say anything, as I have not yet had an opportunity of meeting with them, except perhaps a few camped at the Mordialloc Creek; some of whom, however, belonged to other parts of the country, being banished from their native tribes. The original natives of the districts bordering on Port Phillip and Western Point are, I may say, extinct.

ART. VI.—*Observations on the Geology and Soil of the Country adjacent to the Upper Murray, and also on the Development of the Productive Capabilities of that Portion of the Territory of Victoria.* By CLEMENT HODGKINSON, Esq., Civil Engineer, Vice-President of the Philosophical Institute.

HAVING recently made a cursory reconnaisance of that portion of the basin of the Murray comprised between the Mitta-Mitta and Campaspe, with the view of supplying an

official report on the operations for the improvement of the navigation of the Murray River, I now beg to submit to the members of the Philosophical Institute a few observations on the geology, soil, and future capabilities of the country traversed.

The land contiguous to that portion of the Murray extending from the junction of the Mitta-Mitta to that of the Ovens, consists of narrow level tracts of recent tertiary formation, comprised between the alluvial river-side flats, and high well-grassed forest hills of crystalline rock, that stretch away westward to a considerable distance below Albury, on both sides of the Murray. The highest of these ranges consist of granite; but on the ranges near the river, the most prevalent formation is mica-schist, alternating with the following rocks,—namely, hard quartzose slate—granitiform gneiss—quartz veins thickly studded with crystals of black tourmaline, or else displaying large projecting scales of yellow or white mica—compact quartz rock.

On a range of this formation near Albury, crystals of pink felspar occur in large masses, with scales of mica of argentine lustre in the interstices.

Above the junction of the Ovens, the recent tertiary formation to which I have alluded, displays soil of great fertility —abounding in the alkalis derived from the decomposition of feltspathic rocks, and frequently maintaining a very homogenous appearance to a depth of several feet below the surface. It is in general highly ochraceous, and is, above the confluence of the Ovens and Murray, more inclined to be argillaceous than arenaceous. In this soil lumps or nodules of concretionary limestone are frequently encountered in great abundance at various depths, and are probably derived from the action of rain water on the fossils originally contained in the soil.

The other beds in this recent tertiary formation are a fine grained friable sandstone — a coarse ferruginous quartzose sandstone—a quartzose conglomerate of similar nature—and pipeclay. These tertiary beds are well displayed in section on the escarped banks which characterise those portions of the river bergs on which the stream impinges. Small springs are frequently seen at points on these escarped banks along the visible line of junction of the upper pervious beds with the pipeclay.

From the junction of the Ovens to that of the Goulburn, and thence to that of the Campaspe, the red tertiary soil contiguous to the Murray is more arenaceous than near Albury

and Belvoir, but yet evidently contains elements of fertility highly favourable for the production of wheat and the cultivation of the vine. The indigenous vegetation thereon consists of well-grassed forest of varieties of box (*Eucalptus Corymbosa*), interspersed with clusters of the cypress pine (*Callitris Pyramidalis*), Casuarina torulosa, Banksia, Exocarpus cupressiformis, and several species of Acacia.

Between the Murray and the Broken Creek (which is a long but ill-defined anabranch connecting the Broken River with the reed beds of the Murray near Moira), there is an extensive tract of level, badly-drained forest country, diversified however, by many open grassy plains, some of which occasionally occupy an area of several thousands of acres, and are of very pleasing aspect,—their irregular but well-defined margins being fringed by the graceful *Callitris Pyramidalis* and *Casuarina Paludosa*,—whilst their lawnlike surfaces are not unfrequently enlivened by groups of emus or bustards.

A dense underwood pervades much of the forest in this part of the Murray district in Victoria; and I also noticed that a vast extent of forest country on the New South Wales side of the Murray was similarly scrubby. This growth of underwood has been very rapid of late years, in consequence of the comparative cessation of the bush fires, which formerly kept it down. It threatens serious deterioration of the grazing capabilities of forest land adjacent to the Murray.

This level tract of country between the Murray and Broken Creek, seemed to me to display indices of comparatively modern fluviatile drifts. On the surface of an open plain near that anabranch, and at an elevation considerably higher than that of the highest floodmark near this plain, I noticed a great variety of waterworn fragments of quartz, quartzose schist, slate, &c., all of which have been brought down from ranges very far distant from the plain where seen. The Murray, subsequently to the rise of the submarine bed of the large estuary corresponding to the tertiary deposits of the upper portion of the basin of that river, must have commenced to cut and gradually deepen a channel through them; and that this deepening process has been until recently in operation, is very probable, on account of signs of former river floods comparatively very much higher than any known to have occurred since the occupation of the country of the Murray by Europeans. But as the average elevation of the surface of the Murray near the junction of the Goulburn is about 290 feet above the level of the sea, and its elevation at

Albury (roughly estimated from the apparent average velocity of the stream, and length of course from the Goulburn junction to Albury), at least 100 feet higher,—whilst the surface levels of the tertiary formation along the portion of the Murray now in question, are relatively but very few feet above those of the corresponding levels of the greatest river floods, the denudation caused by the Murray since the upheaval of the marine deposits is not great. Whether this upheaval has occurred at some modern period, or is still slowly and imperceptibly going on, is a question which a more extended inquiry must solve.

The ranges of hills in the vicinity of the Broken River, consist principally of granite. On Futter's Range, which forms the watershed between the Ovens River and Broken River, I noticed at one point a fine very close-grained flesh-coloured granite, probably appertaining to a vein referable to a more recent period than that of the protrusion of the ordinary coarse-grained granite of that range.

On ascending the Goulburn, the tertiary formation is found to predominate as far as Murchison. Quartzose schists prevail northern and eastward of Murchison; and on approaching Seymour, basalt is seen adjacent to slaty flagstone, which is altered on contact with the basalt into a hard flinty rock. This slaty flagstone would afford tolerable building stone with good bedding, and also slabs for paving.

The surface of the country near the confluence of the Murray and Goulburn, consists of very extensive treeless grassy plains. South of these wide plains scrubby box forest prevails over a large part of country, but its monotonous aspect is frequently broken by small isolated plains remarkably well grassed. Above Murchison the surface becomes undulating, and the soil poor and shallow, unless in immediate proximity to the Goulburn. The face of the country, however, improves considerably on approaching Seymour, after passing the Deegay Chain of Ponds.

The bed of the Goulburn, from its confluence with the Murray up to the Murchison, is narrow and deep; its banks display similar beds of sandstone and clays to those already described in connexion with the escarped bergs of the Murray. Near the junction of the Deegay Chain of Ponds, the river bed is wider, and ledges of soft schist and sandstone often appear therein. Shoals of shingle and quartzose gravel occur near Seymour.

Travelling eastward from Murchison, I passed over the

ranges of quartzose schist which constitute part of the Goulburn gold field. These ranges, which are covered with rather scrubby box forest, maintain the same geological character for many miles northwards of the existing diggings. On emerging from the forest, the surface of the country in the vicinity of the Corinella Creek is diversified by some very extensive open plains, generally well grassed, and intersected by narrow strips of box forest. The Corinella Creek terminates in a fine lake; and a few miles further north, I passed two other smaller lakes (one fresh, and the other salt), in the vicinity of which, and north-west thereof, are some beautiful open downs, covered with oat grass, and displaying on their surfaces that remarkable resemblance to ridges of ploughed land which has been noticed on rolling downs in some other parts of Australia. The view from these open uplands was very pleasing. East and south of the extensive grassy plains, the outline of the box forest, rendered dimly blue by distance, was backed by the apparently isolated summits of far distant mountains, whose connecting chains of hills were below the wooded horizon. To the south-west towered Mount Camel, from whence extended in a northerly direction a graceful undulating granitic range, whose grassy declivities were so diversified by clumps of woodland, isolated trees, and untimbered lawnlike surfaces, as to present to the eye a most parklike aspect. In the front ground the silvery expanse of the nearest lake was thronged by large flocks of swans, pelicans, rajahs, and other aquatic birds; whilst through the intervening belts of trees the waters of Lake Cooper were occasionally seen glittering in the distance.

I noticed brown hematite in considerable quantity on the surfaces of some of these downs; which form of iron ore I had previously seen on the right bank of the Murray within the territory of New South Wales. Quartzose schist crops out on some of these downs, but is accompanied by better soil than is ordinarily met with in juxta-position with that rock.

After crossing the dividing range of forest hills between the Corinella Creek and the Campaspe, the recent tertiary formation is re-entered, and it then extends without interruption along the Campaspe to the junction of that river with the Murray. From the township of Rochester to that of Echucha, the Campaspe meanders through a series of very level open plains, which must obviously be very wet and boggy in many places during the winter months, owing to the want of natural drainage.

I found near the junction of the Campaspe with the Murray some fossilized impressions of shells very closely resembling the *Unio*, or fresh-water muscel, now existing in the Murray. Some of these fossils are comprised in the collection of geological specimens submitted to this meeting with this paper.

The alluvial lands, liable to flood, comprised within the bergs or outer banks of the Murray, are intersected by numerous tortuous lagoons, occupying old channels of the new stream. The soil of these alluvial lands consists of sands and clays, rather sparingly intermixed with vegetable matter. These lands are clothed with coarse grass, and heavily wooded with *eucalyptus globulus*;—large trees of any other kind being only very rarely seen growing below the level of the highest flood line. The alluvial flats of the Ovens up to Wangaratta, and the Goulburn up to Seymour, are also of similar nature.

The soil of the alluvial lands of the Murray River and its tributaries, does not therefore display the exuberant richness characteristic of the alluvial brush lands of the rivers which disembogue into the Pacific, or the eastern coast of Australia. In my opinion, this difference is due to the very rank and luxuriant vegetation of these brush lands, in which numerous plants abound, whose nature is such as to cause them to derive from the atmosphere a very much greater proportionate quantity of carbon than the vegetation of the flooded lands of the Murray districts; therefore such plants by their decomposition tend to increase the richness of the soil from whence they originally sprung, or else to augment the depth of the vegetable deposit. A large proportion of the agricultural produce of New South Wales is raised on farms established on cleared brush land liable to occasional floods. Maize and tobacco grow peculiarly well on land of this description; but I believe these exhausting products could not, for the reasons I have just stated, be satisfactorily cultivated on the alluvial lands of the Murray.

Much of the red soil of the recent tertiary marine deposits of the Murray basin would not only be well adapted for the growth of wheat, but would, from the nature of its constituents, depth, and slight amount of labour required to trench it, render the cultivation of vineyards on a large scale thereon, and the manufacture of wine, a most safe, certain, and remunerative mode of employing capital in this colony: for in no part of Australia—and, I may add, in no part of Europe visited by me—have I ever seen such heavy crops of grapes

in proportion to the bearing wood, as I have noticed in many gardens on both banks of the Murray, as well as at the Broken River and Goulburn. At Tallagaroopna station on the latter river, the produce this year from a few perches of trellised vines was enormous, so that cartloads of the grapes were sent off to the Ovens gold fields from that station.

In my humble opinion, the cost, at present value of labour, &c., of establishing and maintaining a vineyard of 100 acres, selected in a favourable situation in the Murray districts, would be as follows:—

	£
Land—100 acres	100
Buildings and fencing	500
Horses, dray, and implements . . .	400
Clearing and trenching	3000
Vine Cuttings and props . . .	300
*Expenses attendant on 1st year's cultivation .	1700
" " 2nd " .	1700
" " 3rd " .	1700
" " 4th " .	1700
" " 5th " .	1700
	£12,800

As the small quantity of wine made at the end of the 4th year would fully cover the interest (calculated at the ordinary rate) on the capital expended without return during the first four years, and as the vineyard would be in full bearing at the end of the fifth year, the cost of establishing and bringing into full bearing a vineyard of 100 acres, would be £12,800.

The annual expenses of the vintage would, after the 4th year, be about £1000 for the hundred acres of vines; and as the annual expenses of the vine cultivation have been assumed to be £1700, the total annual expenditure for a vineyard of 100 acres in full bearing would be £2700. If now the annual production of wine be at the rate, per acre, of 400 gallons, worth 4s. per gallon, the annual yield from 100 acres would be worth £8000—leaving, therefore, for profit (according to the foregoing assumptions) £5300, which sum would be equivalent to about 41 per cent. on the capital sunk during the first five years.

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* In France about twenty men would be employed on one hundred acres of vines.

I may here incidentally remark, that a vineyard will remain in full bearing for very many years: in some of the best vineyards in France, at Vongeot, Migraine, and Epernay, the vines are 500 years old; for in the provinces of Burgundy and Champagne old vines are never uprooted, but drawn down to the ground and covered with earth every few years. In those parts of France, however, where the *quantity* of wine produceable from a given extent of vineyard is considered paramount to *quality*, vines are in general replanted every forty years.

With reference to the preceding estimate, I beg to observe, that on vineyards planted at favourable sites near the Murray, 400 gallons of wine, per acre, would be, in my opinion, a fair assumption for the average annual rate of production from an acre of vines in full bearing, when it is considered that in New South Wales 500 gallons per acre is frequently obtained from well-established vineyards, when no brandy is made. The production of an acre of vines near Albury, belonging to a German settler, has this year been five tons of grapes; which quantity would, if submitted to the wine-press, have yielded about 700 gallons of wine. In Spanish vineyards, 600 hundred gallons, per English acre, are considered a fair ordinary rate of production. Mr. Busby, in his small treatise on the vine, states that the vintages of France average only 247 gallons per English acre. This rate is, however, below the average rate of production of those central and western portions of France which have been visited by me, and I am inclined to believe that Mr. Busby's estimate must have included, without due allowance, those very extensive tracts of land in the south of France where the rows of vines stand at wide distances apart, and the intermediate spaces are devoted to the growth of wheat, barley, buckwheat, &c. The greater portion of French vineyards also occupy poor soils, often unfit for ordinary agricultural purposes; and even the celebrated vineyards of Ay and Epernay are on soil not only very barren, but also so shallow that the subjacent chalk is frequently encountered by the spade at less than one spit deep. I think, therefore, that the average rate of production of vines planted in suitable localities in Victoria, will be considerably higher than in France.

Having had no practice *in vine culture with reference to wine making*, I feel that I am guilty of much presumption in submitting the foregoing imperfect remarks on the vine to the Philosophical Institute, and I am only induced to do so in the hope

that they may elicit from some of my fellow members of the Institute sound practical information relative to this most important object of culture in Victoria.

The most available lands for cultivation in the Murray River districts would be those portions of the recent tertiary formation contiguous to the Murray, and comprised between the Mitta-Mitta and the Ovens: for near the hills copious rains often occur, when the wide level portions of the basin of the Murray are unvisited by a single shower, and many productions are consequently influenced by this difference of climate. For instance, potatoes, which thrive well near Albury, do not grow satisfactorily at the stations near the confluence of the Murray and Goulburn. Some leguminous plants grow, however, luxuriantly in the level country, as shown in the following statement of the weights of some melons and cabbages grown near Echuca.

Melon (Rock Cantaloupe) . . .	15 lbs.
Melon (preserving variety of *cucumis citrullus*) . . .	28 lbs.
Cabbage (mean weight of some of the largest specimens) . . .	17 lbs.

Whilst, therefore, I am of opinion that the fertile land contiguous to the Murray, above the confluence of the Ovens, would, from its superior climate and proximity to gold fields, be highly available for the location of ordinary farmers and cultivators of vineyards, and that the country around the proposed railway terminus, near the confluence of the Murray and Campaspe, would also be well adapted for the settlement of an agricultural population,—I think that the major portion of the level country adjacent to the Murray, below the Ovens, could not at present be profitably cultivated. For this country, at a distance of a few miles back from the river margin, becomes excessively wet and boggy in winter, and is without water in summer, so that, although an excellent fattening country for stock, it is utterly unsuited for small farms. Should, however, at some future period in the history of Victoria, a very greatly augmented population in the interior, cause the cultivation of the soil on the banks of the Murray to become a paramount branch of colonial industrial pursuits, much of the land bordering on the bergs of the Lower Murray, might be made, with the aid of irrigation, to yield certain and abundant crops of ordinary cereals and leguminous plants, and also to display flourishing vineyards, orange orchards, mulberry plantations, and olive groves.

In reference to irrigation, I have already remarked that the lands available for cultivation along the bergs of the Murray are of very moderate and uniform elevation above the river—in fact, only a few feet in height above the levels of the highest floods; so that I think if ever a numerous series of contiguous farms should be established along any part of the Murray, the water required for their irrigation could be economically supplied to each farm from a flat-bottomed boat, provided with steam-pumping engines, and flexible hose of adequate power and dimensions, to respectively deliver to the farms, from the nearest relative points in the stream, the water required by each farmer for distribution over the cultivated lands along the bergs.

Assuming, by way of example, that irrigation has to be applied in the mode just indicated, to 50 acres of land, elevated 40 feet above the nearest part of the Murray, and about half a mile distant therefrom, then a pumping-engine working in the boat with the power of 20 horses only, would, in three hours, deliver at the required height of 40 feet a quantity of water equal in amount to that which would have resulted from a rainfall of rather more than one-quarter of an inch over the fifty acres of land; or, in other words, a quantity of water tantamount to that derivable from a very copious soaking shower.

The absence of water during the summer months in the back country, causes much fine pasture land to be understocked, and even occasions the temporary abandonment during part of the year of many out stations. In some cases the effects of this deficient supply of water might be considerably mitigated by deepening some of the existing hollows, and rendering their bottoms and sides impervious to water. As clay is attainable in the tertiary formation of the Murray basin, and lime is also procurable in many places, artificial waterholes could be often made watertight at moderate cost, by lining their bottoms and sides with well worked clay, at least one foot thick, and covering the clay with a coating of quicklime one inch thick; over which must then be laid rough pitching, or merely a layer of rough shingle. In beds of ponds thus constructed in Great Britain, the lime has been found to exercise important influence on the clay, preventing its perforation by insects, &c. Mr. Brough Smyth's experiments on evaporation having shown that my original estimate, made in 1854, of 5 feet, is likely to be a tolerably fair average rate for the annual evaporation from pond water

near Melbourne, I believe that in the hotter climate of the Murray the rate would be nearly 6 feet: it would therefore be very important that the conservation of water collected in artificial ponds constructed in the Murray districts, should be promoted when possible, by forming such ponds, of a narrow elongated form, so as to admit of the ponds being partially covered in by charred sleepers of rough timber, surmounted by cross layers of brushwood fascines, and a top coating of earth.

The full development of the productive capabilities of the districts adjacent to the Murray, will mainly depend upon the establishment of railway communication between Melbourne, the Northern Gold Fields, and that river. For whenever the Murray shall be connected with Sandhurst and Melbourne by the proposed railway, a populous agricultural community would soon become located around the proposed terminus at Echuca, and that place would rapidly become one of the most important inland towns of Australia; as it would not only be the entrepôt for the supply of an extensive portion of the interior pastoral country, but also the place of rendezvous, prior to transmission to the markets of Victoria, of an immense amount of stock.

Having in my Official Report described the means hitherto adopted to remove impediments to the navigation of the Murray, and the extent to which it might be advantageous for this colony to co-operate in carrying out further improvements in reference to the navigation of that river, any remarks on that subject would be out of place in this paper. The shoals and ledges of rock in the Murray consist of quartzose shingly gravel, soft shale, sandstone, and highly ferruginous quartzose conglomerate. I was able, in the middle of March of the present year, to cross the Murray on horseback at several places; the lowest thus forded was about 106 miles by water below Albury, or a mile or two above the junction of the Ovens. Captain Cadell informed me that these shoals do not impede the navigation of the Murray by vessels of the light draught employed by the Murray River Navigation Company. The snags, however, constitute formidable impediments to navigation when the river is low, and much energy and determination must have been displayed by Captain Cadell when he accomplished his first ascent of the Murray in the *Lady Augusta* steamer, at a period when the waters of the Murray were but little higher than the ordinary summer levels.

Whilst making this excursion through part of the basin of the Murray, I guaged the discharges of that river and several of its tributaries; but the occurrence of a slight general fall in all these streams during the few days that elapsed between the first and last of these measurements, precludes the results of such direct measurements from being made use of for instituting comparison of the general discharges of the streams.

By applying, however, some slight corrections for the estimated effects of the fall just alluded to, I have made an approximate estimate of the relative discharges of the streams in question, on March 8, 1856; on which day the discharge of the Murray at Albury was 660.400 gallons per minute. Representing this discharge by unity, the following table shows the relative discharges of the other streams guaged.

Discharge of Murray at Albury on March 8, 1856	. . . . .	1.000
Ditto Goulburn at Seymour, corrected to same date	. . . . .	0.370
Ditto Ovens at Wangaratta	ditto .	0.100
Ditto Campaspe at Rochester	ditto .	0.007
Ditto Broken River at Benalla	ditto .	0.003

It would hence appear, on consulting the general map of Victoria, that, in proportion to the areas of drainage above the points where these streams were guaged, the summer discharge of the Goulburn is the highest, and that of the Campaspe the lowest. The large summer flow of the Goulburn is attributable to the permanent and unusually copious springs which arise in the lofty densely wooded mountains which separate the tributaries of the Goulburn from the sources of the Yarra Yarra.

In the level parts of the Murray districts, the principal dray tracks traverse alternately portions of sound ground, of tolerable lengths, and shorter intervening portions of soft boggy ground. Consequently, during the wet months of the year, drays have to be loaded excessively light in proportion to the powers of draught of the teams on the sound ground, in order that they might be enabled to get through the boggy flats. Yet, if on these limited portions of bad ground, short lengths of earthen roadway were formed, and planked ways laid down thereon, these boggy flats would, in lieu of straining the draught animals, become a relief to them, as a horse can actually draw on a level planked way *a load two and a*

half times the maximum load he could draw on a level macadamized roadway.

In constructing in this colony a planked way across one of the swampy flats just alluded to, deep roadside drains would first have to be cut, and the earth resulting therefrom thrown up to form the proposed earthen roadway; taking care to construct culverts in the requisite positions, and cut drains from mouths of culverts, as far as necessary, towards the outfall. Longitudinal sleepers, obtained from any sound variety of *eucalyptus*, and each about 16 feet long, 12 inches wide, and 4 inches thick, might then be laid in two parallel rows, about 3½ feet apart in the clear, in trenches cut to receive them in the earthen roadway. These sleepers would of course have to be laid so that the scarf joint between two sleepers on one side should be opposite to the middle of a sleeper on the other side. Seasoned gum planks, each 8 feet long and 3 inches thick, might then be fastened to the sleepers by 6 inch spikes; taking care to ram the earth well under each plank as it is laid, so as to afford a continuous bearing for the planking. The earthen roadway being then brought up flush with the outer edges of the planking, and a layer of sand about one inch thick spread over all, the planked way would be ready for traffic. In a road thus formed, if two vehicles meet on the planked way, one of them could easily turn off on to the earthen roadway, and regain the planked way after the vehicles had passed each other. The cost of such a planked way, constructed as described, and including the formation and drainage of the earthen roadway, would not exceed, if near well timbered crown lands, the rate of £2000 per mile; and the annual cost of its maintenance would not, in my opinion, be more for the first seven years than one per cent. of the original cost.

In reference to the construction of short lengths of planked way over bad ground in the Murray districts, the *eucalyptus globulus* of the extensive alluvial flats of the Murray and its tributaries, would yield good plank for such a purpose. The sub-varieties of *eucalyptus corymbosa* are, in the level portions of the Murray district, unsound at heart if of large dimensions; and the plank obtainable therefrom would be somewhat inferior to that derivable from the red or blue gum, *eucalyptus* timber, and equally liable to longitudinal contraction. One of these sub-varieties demands, however, special notice, owing to the apparent want of durability of its timber. It is called "Apple Tree" by the settlers on the

Murray, although totally different from *angophora lanceolata*, or the Apple Tree of New South Wales.

ART. VII.—MR. W. BLANDOWSKI'S *Report, No. III. to the Surveyor-General, of an Excursion from King's Station to Bass River, Phillip and French Islands.*

Camp on Phillip Island, Western Port,
January 29th, 1855.

SIR,

IN my route along the southern coast, I have visited the following localities: namely, the whole coast of Western Port to Cape Paterson, Phillip, French, and Sandstone Islands.

The land from Dr. Adam's station toward Lisle's, consists for the most part of scrubby and swampy plains, but if drained would be admirably adapted for agricultural purposes. At present, however, it is dry only during the hot months of January and February. Between Lisle's station and the inlets, the land is swampy, and luxuriantly covered with excellent grass, well adapted for fattening cattle.

The inlets are in a very bad state for travelling, the banks being extremely boggy.

The ferryman stationed there does little or nothing towards any improvements, and the boats are in so leaky a state as to become half full before reaching the opposite shore. It would be only doing justice to the travelling population of these parts, and also a great boon to those who intend investing their labour at the coal mines of Cape Paterson, to make some improvement in the means of transit across these inlets. Moreover, as many people lose their way in this short distance, (being scarcely three miles,) and several persons are even supposed to have perished in the scrub and swamps, it is imperative that a track be marked out to prevent such calamities in future. The same remark applies also to the whole roads between Lisle's station and Bass River. It was between these two places that Dr. Mueller missed his way in the beginning of last year, and was exposed to much privation; and Mr. Black, a settler of long standing in these parts, also lost himself in the same locality, being reduced to such extreme distress as to be under the necessity of sacrificing his horse to maintain his own existence. For the formation